



Prognostic Biomarkers in Mental Impairments: Current and Future

Sarah Morris, Ph.D.

Chief, Adult Psychopathology Branch

*Associate Head, Research Domain
Criteria (RDoC) Unit*

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National Institute
of Mental Health

What diagnostic and prognostic biomarkers are now being used in mental health, that are likely to appear routinely in the medical record?

- Age of symptom onset
- Premorbid social and academic attainment
- Substance abuse

Are there any biomarkers that distinguish between severe psychiatric disorders where work is not likely and those where work is recommended?

- There are no biomarkers that reliably distinguish between disorders;
- For people with psychosis, **performance on cognitive tests** is more strongly related to work status than other predictors;
- Performance on cognitive tests accounts for approximately 12% to 52% of the variance in functional outcomes in people with psychosis
- However:
 - Not usually in the medical record
 - Requires specialized testing
 - Not a strong enough predictor to use on an individual basis

Sources: Dickerson et al, 2017 J Nerv Ment Dis; Zaragosa Domingo et al., Schizophr Res Cogn 2015; Nuechterlein et al, 2011, Schiz Bull

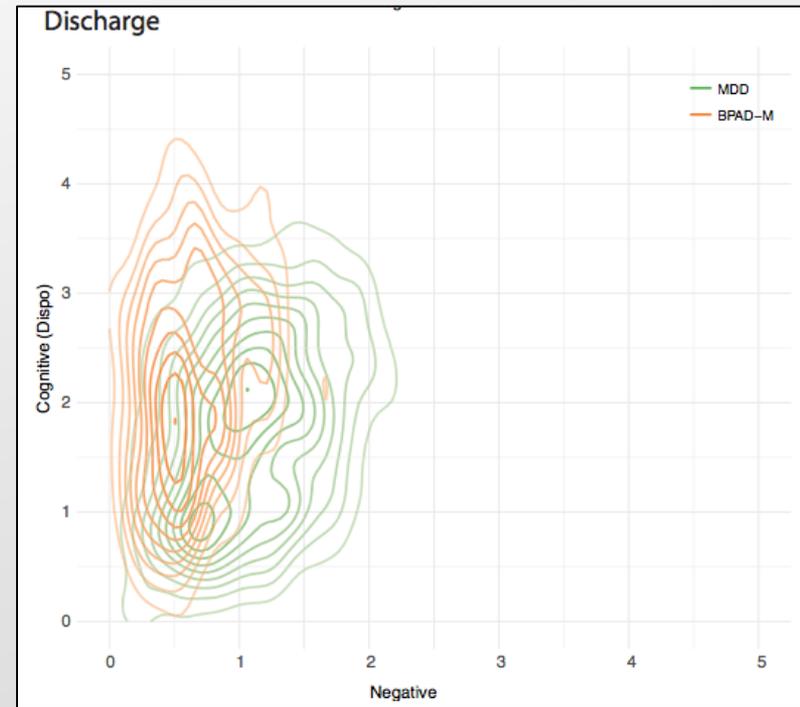
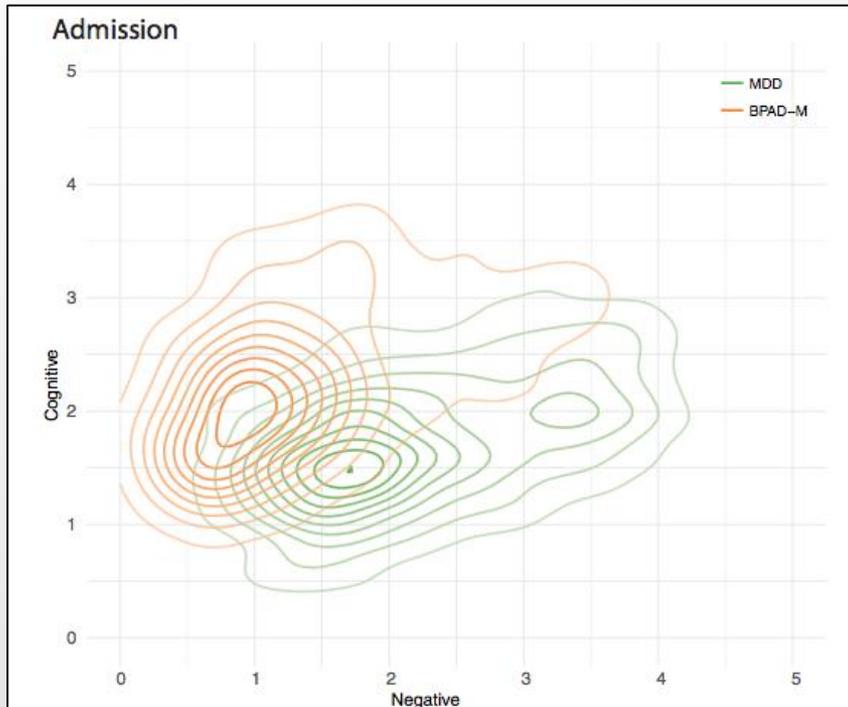


- **Have any markers emerged as the gold standard for clinical use?**
 - No
- **How accessible is mental biomarker assessment (e.g., is it only available at specialized facilities)?**
 - MRI
 - EEG
 - Cognitive testing

What advancements are likely in the next five years?

High Throughput Phenotyping for Dimensional Psychopathology in Electronic Health Records

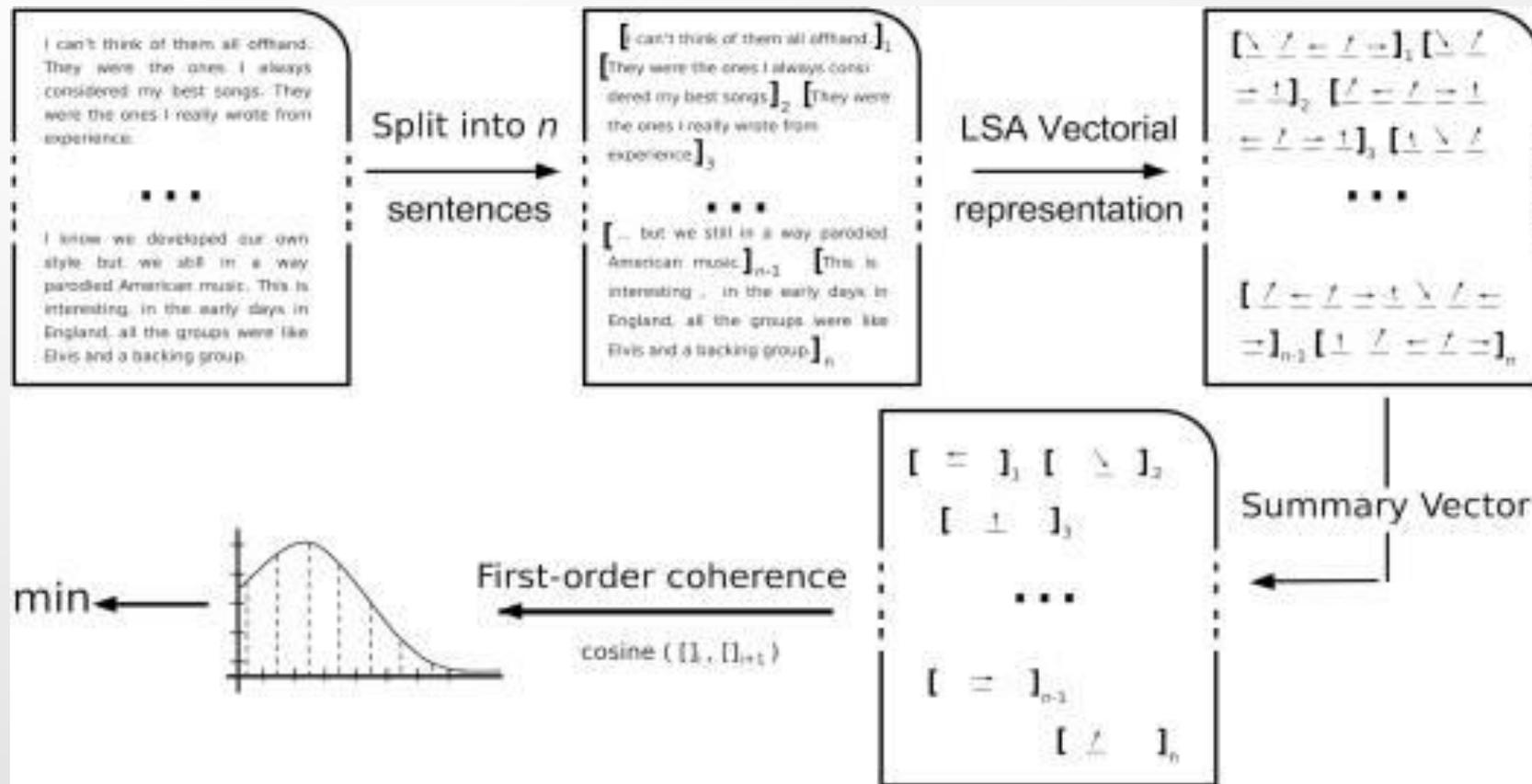
Thomas H. McCoy Jr., Sheng Yu, Kamber L. Hart, Victor M. Castro, Hannah E. Brown, James N. Rosenquist, Alysa E. Doyle, Pieter J. Vuijk, Tianxi Cai, and Roy H. Perlis



Source: McCoy et al., Biol Psych, 2018

What advancements are likely in the next 5 years?

Natural language processing: Semantic coherence



Source: Bedi et al., NPJ Schiz, 2015

What advancements are likely in the next 5 years?

Multivariate predictive algorithms: NAPLS psychosis risk calculator

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An Individualized Risk Calculator for Psychosis

For more information on Prodromal Risk Syndromes and risk assessment, see [NAPLS](#)

For more information on derivation and uses of this risk calculator, see [Cannon et al.](#)

Please check the box if your answer is yes

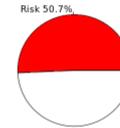
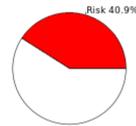
Does the patient have an interview-based SIPS diagnosis of a prodromal risk syndrome?

Were the ratings and test scores obtained by a professional?

The screenshot shows the NAPLS psychosis risk calculator interface with the following inputs:

- Patient's age (Years): 16
- Neuropsych BACS Symbol Coding Raw Score: 78
- Neuropsych HVLT-R Total Raw Score: 10
- The undesirable life events score: 10
- Number of types of trauma endorsed: 2
- Sum of rescaled SIPS ratings for unusual thought content (P1) and suspiciousness (P2): 6
- Change in Global social functioning in year prior to baseline: 2
- Have first degree relative with a psychotic illness?: No

1-year and 2-year probability of conversion to psychosis



This calculator was based on a Cox proportional hazards regression model that was developed from a cohort consisting of 596 clinical high risk participants from the second phase of the North American Prodrome Longitudinal Study([NAPLS](#))

Thank you!

